 Name_____

Graphing Simple Rational Functions

Date_____ Period____

Identify the vertical asymptotes, horizontal asymptote, domain, and range of each.

1) $f(x) = \frac{4}{x+2} + 1$

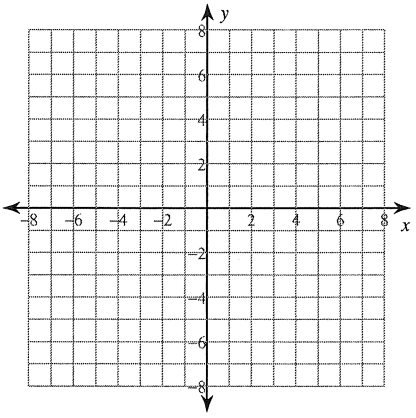
2) $f(x) = -\frac{4}{x-2} + 2$

3) $f(x) = \frac{4}{x} - 2$

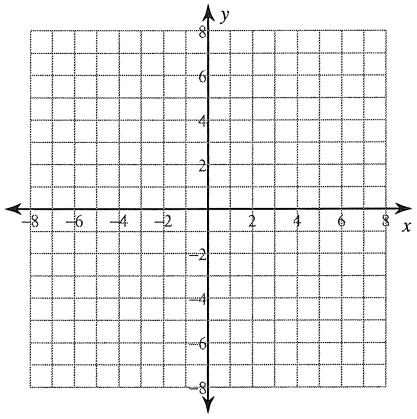
4) $f(x) = \frac{4}{x+1}$

Identify the vertical asymptotes, horizontal asymptote, domain, and range of each. Then sketch the graph.

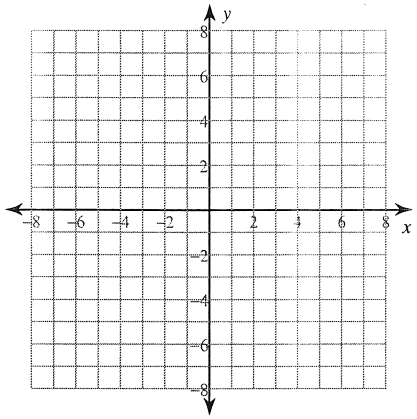
5) $f(x) = -\frac{1}{x-3} - 2$



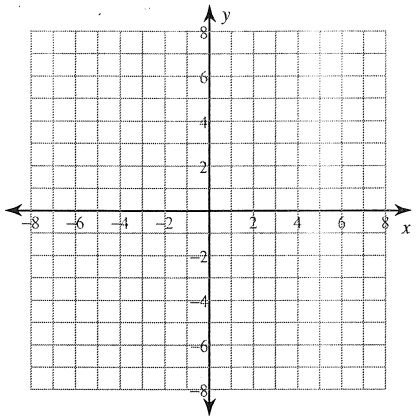
6) $f(x) = \frac{2}{x+3} - 2$



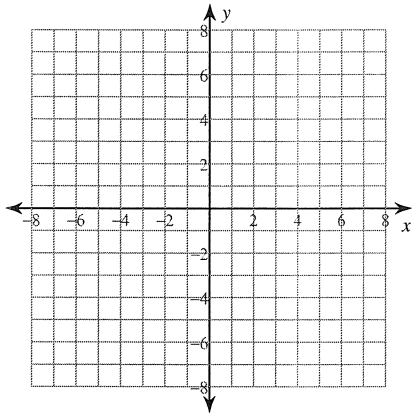
7) $f(x) = -\dfrac{3}{x-2} + 2$



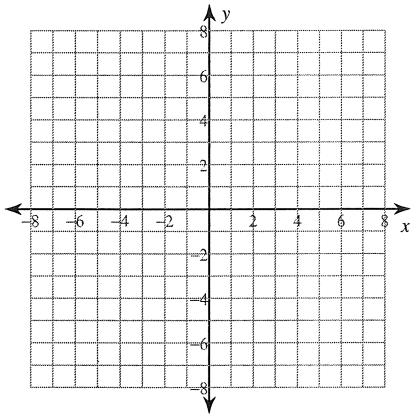
8) $f(x) = \dfrac{2}{x+3} - 3$



9) $f(x) = \dfrac{3}{x} + 2$



10) $f(x) = \dfrac{1}{x-4} + 1$



Critical thinking question:

11) Write a function of the form $f(x) = \dfrac{a}{x-h} + k$ with a vertical asymptote at $x = 25$

Kuta Software - Infinite Algebra 2 Name_____

Graphing Rational Functions

Date_____ Period____

Identify the points of discontinuity, holes, vertical asymptotes, x-intercepts, and horizontal asymptote of each.

1) $f(x) = \dfrac{1}{3x^2 + 3x - 18}$

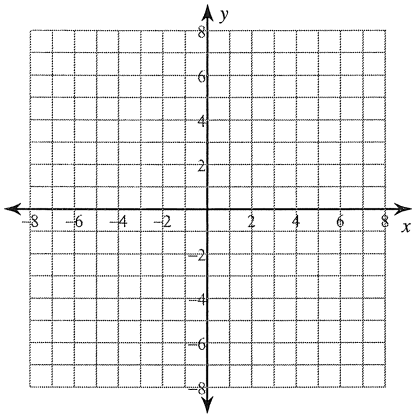
2) $f(x) = \dfrac{x - 2}{x - 4}$

3) $f(x) = \dfrac{x^3 - x^2 - 6x}{-3x^2 - 3x + 18}$

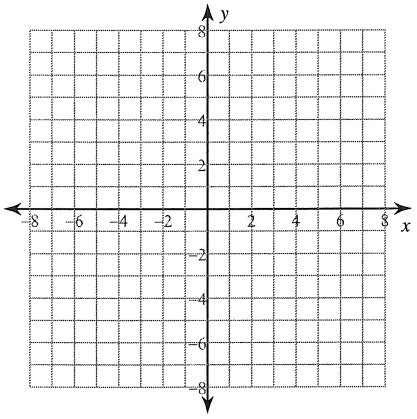
4) $f(x) = \dfrac{x^2 + x - 6}{-4x^2 - 16x - 12}$

Identify the points of discontinuity, holes, vertical asymptotes, and horizontal asymptote of each. Then sketch the graph.

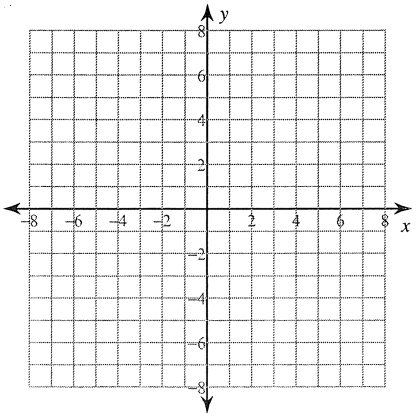
5) $f(x) = -\dfrac{4}{x^2 - 3x}$



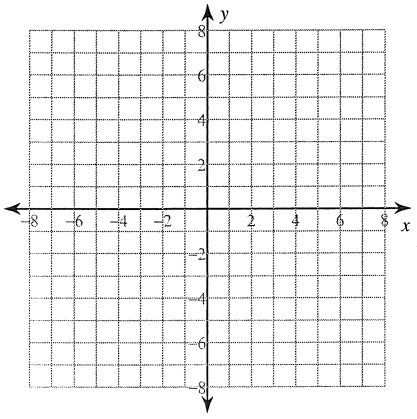
6) $f(x) = \dfrac{x - 4}{-4x - 16}$



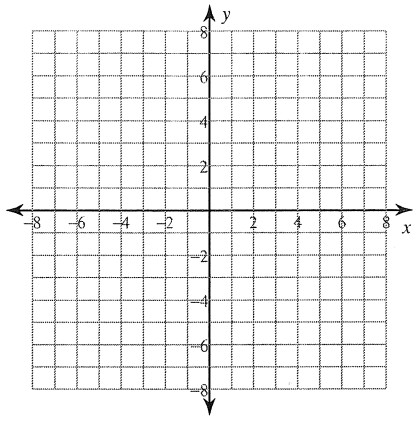
7) $f(x) = \dfrac{x + 4}{-2x - 6}$



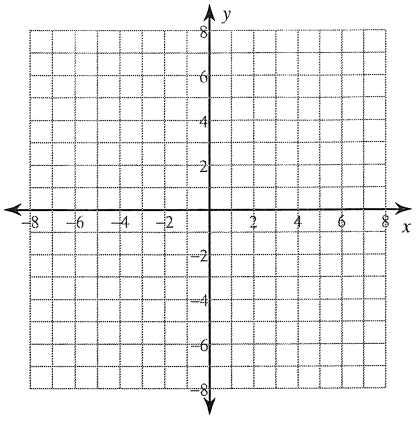
8) $f(x) = \dfrac{x^3 - 9x}{3x^2 - 6x - 9}$



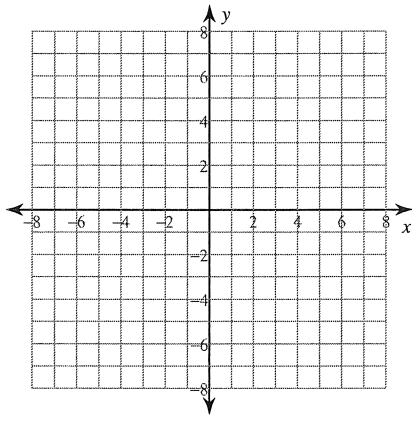
9) $f(x) = \dfrac{3x^2 - 12x}{x^2 - 2x - 3}$



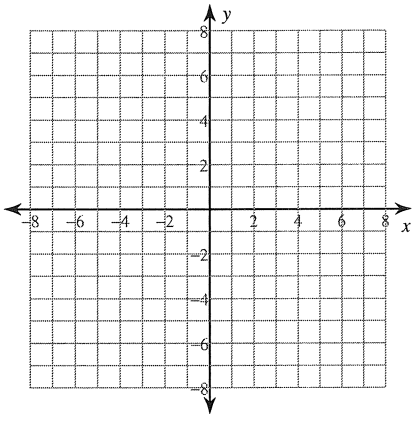
10) $f(x) = \dfrac{x^3 - 16x}{-4x^2 + 4x + 24}$



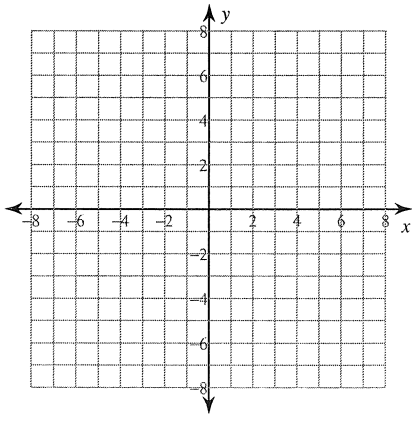
11) $f(x) = \dfrac{x^2 + 2x}{-4x + 8}$



12) $f(x) = \dfrac{x + 2}{2x + 6}$



13) $f(x) = \dfrac{2x^2 + 10x + 12}{x^2 + 3x + 2}$



14) $f(x) = \dfrac{3}{x - 2}$